

IN THE SPECIFICATION

Please revised paragraph 4 on page 5 of the specification as follows:

D1 Fig. 1 shows a preferred embodiment of the actuator according to the present invention:
two canals 10, two permanent magnets 11, membrane 12, planar coils 13, spacer-chip 14, soft magnetic substrate 15, soft magnetic core 16, and sound outlet opening 17,

[Please revised paragraph 1 on page 6 of the specification as follows:]

D2 The present invention relates to an actuator operating according to the change in reluctance principle in a balanced configuration - a preferred embodiment is shown in figure 1 - alternative embodiments are shown in figures 2 and 3. This actuator - here operating as a loudspeaker - consists of two canals 10, two planar coils 13, two permanent magnets 11, a membrane 12 and a spacer chip 14 providing the necessary back chamber volume. The permanent magnets 11 have their magnetisation in the same direction producing a magnetic bias flux across the lower and upper air gap through the core 16 and the substrate 15 and back through the side walls to the opposite side. The planar coils 13 are driven so that the produced magnetic fluxes are in opposite directions leading to a decreasing flux across one air gap and an increasing flux across the other.

Please revised paragraph 5 on page 6 of the specification as follows:

D3 In Figures 1-3 the cross-section of the membrane 2 changes with radius due to a higher magnetic flux density in the middle of the membrane than at the rim. Small canals ~~(not shown)~~ 10 in the centre of the membrane lead the air from the centre of the membrane to the rim of the membrane thereby minimising squeeze film damping effects in the air gaps between the membrane and the permanent magnets.

Please revised paragraph 2 on page 10 of the specification as follows:

D4 The membrane is fabricated by electroplating of soft magnetic material in one or several steps. Thereby the thickness of the membrane can be locally increased leading to locally stiffer parts. At the same time these areas of higher thickness lead to a lower magnetic flux density thereby avoiding saturation in the material, which otherwise leads to less output force. Furthermore, a non-uniform topography of the membrane - e.g., canals 10 - guides the air in the gap between the permanent magnets and the membrane in order to minimise the squeeze film damping.

Please revised paragraph 5 on page 11 of the specification as follows:

D5 Squeeze film damping occurs in small gaps. Here, the influence of friction becomes important resulting in losses, lower output, noise etc. Producing small canals 10 in the membrane surface in the area where squeeze film damping occurs can minimise this effect. The

canals 10 have to be able to guide air from the centre of the membrane to the outside. In the
05 centre of the membrane, where the magnetic flux is almost zero, the membrane can be thinner
whereby the air gap is increased and squeeze film damping effects are reduced.
